M.R.O. 1—77,006—8-6-37.

(1) Number of pages 18

(2) Date of repair

(3) Initials of the Referencer

F. K

MADRAS RECORD OFFICE.

Government of Madras.

Public works **DEPARTMENT.**

G.O. No. 279 | Press ~~Mis.~~

576-77

Dated 29. 1 1872.

Not to be folded or roughly handled

No. 576. Read the following letter from the Executive Engineer on special duty, Madura District, to the Acting Chief Engineer for Irrigation, dated Madura, 11th January 1872, No. 325:—

I HAVE the honour to submit the subjoined report of the progress made with the Perryaur investigations during December 1871.

2. The contour survey of the country between the new and old sites has been almost completed, and the sections necessary to determine the best outfall and most desirable arrangements at the watershed have been taken.

3. As compact rock has not yet for a certainty been found at the southern end of the escape saddle, or on the side of the hill between this saddle and the northern extremity of the proposed reservoir embankment, the trial-pits are being enlarged, and I hope we shall soon be in possession of reliable information regarding the contour of the rock at both places.

4. Judging from the results of the investigations up to date, I think I may safely state that there will be a large saving (several lakhs of Rupees) by constructing the reservoir in the locality now selected for the head-works, and that a much lower embankment than has been designed for any of the upper sites will impound the required volume of water in the reach of the Perryaur now under examination.

5. As promised in my report No. 7-A, dated 11th ultimo, I beg to attach a statement showing the surface fall, the surface velocity, and the estimated discharge of the Perryaur at the hours specified, adjacent to No. 4 site, during the flood on the 26th November last.

6. The register and diagram showing the discharge of the Perryaur and the rainfall at the Perryaur camp during December 1871 accompany this report.

PERRYAUR PROJECT.

Table of Rainfall and Discharge of Perryaur during the month of December 1871.

Dates.	Rainfall at		Hours.	Water level in feet.	Discharge.	
	Perryaur Camp.	Kythery Camp.			Cubic feet per second.	1,000 Cubic yards per day.
	Inches.	Inches.				
1st December ...	0·03	0·00	6 A. M. 6 P. M.	1·28 1·24	742 725	2,347
2nd " ...	0·00	0·00	6 A. M. 6 P. M.	3·04 1·92	1,761 1,087	4,557
3rd " ...	0·00	0·00	6 A. M. 6 P. M.	1·45 1·28	821 742	2,501
4th " ...	0·00	0·00	6 A. M. 6 P. M.	1·20 1·15	710 690	2,240
5th " ...	0·00	0·00	6 A. M. 6 P. M.	1·00 0·98	628 620	1,997
6th " ...	0·00	0·00	6 A. M. 6 P. M.	0·88 0·85	583 572	1,848
7th " ...	0·00	0·03	6 A. M. 6 P. M.	0·80 0·75	554 536	1,744
8th " ...	0·00	0·00	6 A. M. 12 noon. 6 P. M.	0·87 1·66 1·20	579 927 710	2,365

Table of Rainfall and Discharge of Perryaur during the month of Dec. 1871.—(Conld.)

Dates.	Rainfall at		Hours.	Waterl evel in feet.	Discharge.	
	Perryaur Camp.	Kythery Camp.			Cubic feet per second.	1,000 Cubic yards per day.
	Inches.	Inches.				
9th December ...	0·00	0·00	6 A. M. 6 P. M.	0·75 0·70	536 518	1,686
10th ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·58 0·55	477 467	1,510
11th ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·52 0·45	457 435	1,427
12th ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·42 0·39	426 417	1,349
13th ,, ...	0·08	0·08	6 A. M. 6 P. M.	0·42 0·48	426 444	1,392
14th ,, ...	0·10	0·08	6 A. M. 6 P. M.	0·42 0·75	426 536	1,539
15th ,, ...	0·00	0·10	6 A. M. 6 P. M.	1·15 0·95	690 609	2,078
16th ,, ...	0·00	0·01	6 A. M. 6 P. M.	1·00 0·97	628 616	1,990
17th ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·82 0·80	561 554	1,784
18th ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·72 0·55	525 467	1,587
19th ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·50 0·42	451 426	1,403
20th ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·37 0·39	413 417	1,328
21st ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·37 0·55	413 467	1,408
22nd ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·42 1·10	426 669	1,752
23rd ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·58 0·42	477 426	1,445
24th ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·95 0·95	609 609	1,949
25th ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·52 0·45	457 435	1,427
26th ,, ...	0·00	0·00	6 A. M. 6 P. M.	1·85 0·97	1,043 616	2,654
27th ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·52 0·39	457 417	1,398
28th ,, ...	0·21	0·06	6 A. M. 6 P. M.	0·30 0·27	396 389	1,256
29th ,, ...	0·12	0·25	6 A. M. 6 P. M.	0·42 1·58	426 884	2,096
30th ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·80 0·60	554 483	1,659
31st ,, ...	0·00	0·00	6 A. M. 6 P. M.	0·42 0·27	426 389	1,304
Total...	0·54	0·61	......	......	......	57,020

Depth run off from Catchment Basin of 250 square miles = 2·65 inches.

Mean discharge ... ... { 1,839,354 Cubic yards per diem.
76,639 ,, ,, per hour.
574 ,, feet per second.

		Cubic yards.
Discharge of Perryaur during December 1869	... ...	100,160,000
Do. of do. during December 1871	... ...	57,020,000
Difference—Excess in December 1869...		43,140,000

Madura,
11*th January* 1872.

(Signed) R. SMITH,
Ex. Engr. on special, duty, Madura District.

PERRYAUR PROJECT.

Statement showing the surface fall, the surface velocity, and the estimated discharge of the Perryaur at different hours during the flood on the 26th November 1871.

Hours.	Surface level of Perryaur, in feet, *below* datum.		Difference, surface fall of Perryaur in 3,800 feet.	Observed surface velocities in feet per second.			Average water-way, in square feet, of four sections taken in the reach of 3,800 feet.	Area of water section in square feet, in the reaches of 89 and 150 feet.	Discharge of Perryaur in cubic feet per second, deduced from the velocities given in Columns.			Hydraulic mean depth, in feet, of the 89 and 150 feet reaches.	Average hydraulic mean depth, in feet, of four sections taken in the reach of 3,800 feet.	Remarks.
	At Yelloominchin Tavalum.	At 3,800 feet west of Yelloominchin Tavalum.		In a reach of 89 feet.	In a reach of 150 feet.	In a reach of 3,800 feet.			5	6	7			
1	2	3	4	5	6	7	8	9	10			11	12	13
7-50 A. M.	22·66	......	......	6·05	......	......	......	3,247	16,300	......	......	13·53	......	In calculating the discharge the mean velocity has been assumed to equal ·83 V.
8-45	23·74	26·02	2·28	......	6·43	......	......	3,011	......	16,048	......	13·38	......	
9-50	24·82	......	......	......	5·59	......	......	2,784	......	12,917	......	12·54	......	
12 o'clock	26·57	28·38	1·81	......	5·245	6·4	2,219	2,432	......	10,586	11,787	10·95	11·43	
1-50 P. M.	27·54	......	......	......	5·027	......	......	2,231	......	9,307	......	10·33	......	
3 ,,	28·04	29·63	1·59	......	4·66	5·98	1,966	2,142	......	8,283	9,757	10·10	10·29	
4 ,,	28·62	......	......	......	4·55	......	......	2,025	......	7,646	......	9·64	......	
6 ,,	29·04	......	......	......	4·38	......	......	1,941	......	7,055	......	9·33	......	

NOTE.—From the experiments made at 8-45 o'clock, at 12 o'clock, and at 3 o'clock, it will be observed that the discharge, as deduced from the surface velocities, is much less than would be arrived at by the formulae, in general use for calculating the discharge of streams, from the hydraulic mean depth and inclination. This may partly be accounted for by supposing the floats did not keep in the maximum current the whole way; but I am inclined to think that in a river like the Perryaur more of the available head is consumed in overcoming irregularities of the section than is generally supposed.

(Signed) R. SMITH,
Executive Engineer on special duty.

MADURA,
11*th January* 1872.

Proceeding of the Madras Government, Pubic Works Department,
29th January 1872.

No. 577. ORDER THEREON, 29th January 1872, No. 279.

IRRIGATION, No. 46.	ORDERED to be recorded.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the Chief Engineer for Irrigation, with Diagram.
To R. Smith, Esq.

Exd. E. C. Shunker.

No. 325 Special Executive Engineer's Office
Madura 11th January 1872

From
The Executive Engineer
On Special duty
Madura District

To
The Acting Chief Engineer
for Irrigation
Fort Saint George

Sir,

I have the honor to submit the subjoined report of the progress made, with the Perryaur investigations, during December 1871. —

2. The Contour survey of the Country between the new and old sites, has been almost Completed, and the sections necessary to determine the best outfall and most desirable

arrangements

arrangements, at the Watershed, have been taken.

3. As Compact rock has not yet, for a certainty, been found at the Southern end of the Escape saddle, or on the side of the Hill, between this saddle and the Northern extremity of the proposed Reservoir Embankment, the trial pits are being enlarged, and I hope we shall soon be in possession of reliable information regarding the Contour of the rock at both places.

4 Judging from the results of the investigations up to date, I think I may safely state that there will be a large saving (Several lacs of Rupees) by constructing the

Reservoir

Reservoir in the locality now selected for the Head Works, and that a much lower embankment, than has been designed for any of the upper sites, will impound the required volume of water, in the reach of the Perryaur now under examination.—

5 As promised in my Report No. 7A, dated 11th Ultimo, I beg to attach a Statement showing the surface fall; the surface velocity; and the estimated discharge of the Perryaur at the hours specified,—adjacent to No. 4 site, during the flood on the 26th November last.

6. The Register and Diagram showing the discharge of the Perryaur, and the rainfall at the Perryaur Camp, during December 1871

accompany

accompany this report.

I have the honor to be

Sir,

Your Most Obedient Servant

A. J. Smith

Executive Engineer

On Special duty

Madura District

Perryaur Project

Table of Rainfall and discharge of Perryaur during December 1871.

Date	Rainfall at Perryaur Camp inches	Rainfall at Hythory Camp inches	Hours	Water Level in feet	Discharge Cubic feet per second	Discharge 1000 cyds per day	Date	Rainfall at Perryaur Camp inches	Rainfall at Hythory Camp inches	Hours	Water Level in feet	Discharge Cubic feet per second	Discharge 1000 cyds per day
Dec. 1	0.03	0.00	6 a.m 6 P.m	1.28 1.24	742 725	2347	Dec 18	0.00	0.00	6 a.m 6 p.m	0.72 0.55	525 467	1587
2	0.00	0.00	6 a.m 6 P.M	3.04 1.92	1761 1087	4557	19	0.00	0.00	6 a.m 6 p.m	0.50 0.42	451 426	1403
3	0.00	0.00	6 a.m 6 p.m	1.45 1.28	821 742	2501	20	0.00	0.00	6 a.m 6 p.m	0.37 0.39	413 417	1328
4	0.00	0.00	6 a.m 6 p.m	1.20 1.15	710 690	2240	21	0.00	0.00	6 a.m 6 p.m	0.37 0.55	413 467	1408
5	0.00	0.00	6 a.m 6 p.m	1.00 0.98	628 620	1997	22	0.00	0.00	6 a.m 6 p.m	0.42 1.10	426 669	1752
6	0.00	0.00	6 a.m 6 p.m	0.88 0.85	583 572	1848	23	0.00	0.00	6 a.m 6 p.m	0.58 0.42	477 426	1445
7	0.00	0.03	6 a.m 6 p.m	0.80 0.75	554 536	1744	24	0.00	0.00	6 a.m 6 p.m	0.95 0.95	609 609	1949
8	0.00	0.00	6 a.m 12 noon 6 p.m	0.87 1.66 1.20	579 927 710	2365	25	0.00	0.00	6 a.m 6 p.m	0.52 0.45	457 435	1427
9	0.00	0.00	6 a.m 6 p.m	0.75 0.70	536 518	1686	26	0.00	0.00	6 a.m 6 p.m	1.85 0.97	1043 616	2654
10	0.00	0.00	6 a.m 6 p.m	0.58 0.55	477 467	1510	27	0.00	0.00	6 a.m 6 p.m	0.52 0.39	467 417	1398
11	0.00	0.00	6 a.m 6 p.m	0.52 0.45	457 435	1427	28	0.21	0.06	6 a.m 6 p.m	0.30 0.27	396 389	1256
12	0.00	0.00	6 a.m 6 p.m	0.42 0.39	426 417	1349	29	0.12	0.25	6 a.m 6 p.m	0.42 1.58	426 884	2096
13	0.08	0.08	6 a.m 6 p.m	0.42 0.48	426 444	1392	30	0.00	0.00	6 a.m 6 p.m	0.80 0.60	554 483	1659
14	0.10	0.08	6 a.m 6 p.m	0.42 0.75	426 536	1539	31	0.00	0.00	6 a.m 6 p.m	0.42 0.27	426 389	1304
15	0.00	0.10	6 a.m 6 p.m	1.15 0.95	690 609	2078	Total	0.54	0.61	Inches		Total	57,020
16	0.00	0.01	6 a.m 6 p.m	1.00 0.97	628 616	1990							
17	0.00	0.00	6 a.m 6 p.m	0.82 0.80	561 554	1784							

Depth run off from Catchment basin of 250 square miles: 2.65 Ins

Mean Discharge.. { 1,839,354 Cubic yards per diem
76,639 " " " hour
574 " feet per second

Discharge.

	Cubic yards
Discharge of Periyaur during December 1869.	100,160,000
Do. of Do. during December 1871	57,020,000
Difference – Excess in December 1869	43,140,000

O. Smith

Executive Engineer
On Special duty
Madura Dist.

Spl. Ex. Engr's Office
Madura 11th January 1872

Compared. G. Meers?
" T.F.

Enclosure No. 1 in a Letter
from the Executive Engineer
On special duty Madura Distt.
dated 11th January 1872

2/40/72 No. 325

To. The Actg. Chief Engr.
for Irrigation.
Fort Saint Geog

P. W. 220/72.
Pros - 29th Jany/72 in L 57 b

Table of Rainfall and
Discharge of Perryaur
during December 1871.

Perryaur Project

tatement showing the surface fall, the surface velocity, and the estimated discharge of the Perryaur, at different hours, during the flood on the 26th November 1871.

Surface level of Perryaur, in feet, below Datum. At Yelloominchine Yavalum	Surface level of Perryaur, in feet, below Datum. At 3800 feet West of Yelloominchine Yavalum	Difference, Surface fall of Perryaur in 3800 feet.	Observed surface velocities in feet, per second. In a reach of 89 feet	Observed surface velocities in feet, per second. In a reach of 150 feet	Observed surface velocities in feet, per second. In a reach of 3800 feet	Average waterway in Square feet, of four Sections taken in the reach of 3800 feet	Area of water Section, in Square feet, in the Reaches of 89 and 150 feet	Discharge of Perryaur in Cubic feet per Second, deduced from the velocities given in Columns 5	Discharge … in Columns 6	Discharge … in Columns 7	Hydraulic mean depth, in feet, of the 89 and 150 feet Reaches	Average Hydraulic mean depth, in feet, of four Sections taken in the Reach of 3,800 feet.	Remarks.
2	3	4	5	6	7	8	9	10			11	12	13
22.66	"	"	6.05	"	"	"	3,247	16,300	"	"	13.53	"	
23.74	26.02	2.28	"	6.43	"	"	3,011	"	16,048	"	13.38	"	In calculating the
24.82	"	"	"	5.59	"	"	2,784	"	12,917	"	12.54	"	discharge the mean
26.57	28.38	1.81	"	5.245	6.4	2,219	2,432	"	10,586	11,787	10.95	11.43	velocity has been
27.54	"	"	"	5.027	"	"	2,231	"	9,307	"	10.33	"	assumed to equal
28.04	29.63	1.59	"	4.66	5.98	1,966	2,142	"	8,283	9,757	10.10	10.29	.83 V
28.62	"	"	"	4.55	"	"	2,025	"	7,646	"	9.64	"	
29.04	"	"	"	4.38	"	"	1,941	"	7,055	"	9.33	"	

o:— From the experiments made at 8.45 O'Clock, at 12 O'Clock, and at 3 O'Clock, it will be observed that the discharge, as deduced from the surface velocities, is much less than would be arrived at by the formulae, in general use, for Calculating the discharge of streams, from the hydraulic mean depth and inclination. This may partly be accounted for by supposing the floats did not keep in the maximum current the whole way, but I am inclined to think that in a river, like the Perryaur, more of the available head is consumed in overcoming irregularities of the Section, than is generally supposed.

Executive Engineer's Office.
adura 11th January 1872

Copied and Compared by. G. Meerit
" by. J.K.

R. Smith
Executive Engineer
On Special duty
Madura Distt.

P. W. 1872 Depart

No. 325

From Chief Eng. No. 220.

The Executive Engineer
On special duty
Madura Distt

To The Actg Chief Engr
for Irrigation
Fort Saint George

Dated 11th } January 1872
Despd 12th }
Received 15th
Read 16th
Enclosures 3

Submits the Report of the progress made with the Perryaur investigations during the month of Decemr 1871.

No. 278 – 29th Jany /72 With an Htg?

No. 279.

Ordered to be recorded.

To the Chief Engr for Irrign
with Enclosures
R. Smith Esquire

[illegible] 31/1/72

C 17 Jany/72 R. 19th

1247

No. 220.

Govt. of {1872} Madras.

PUBLIC WORKS.

To The Chief Engr for Irrigation

Dated

Recd. Encl. 2

G. O. 29th Jany 1872, No. 279.

Nos. 576 & 577

Perryaur Project. Report

of the progress made with the investigations of the Perryaur Project during Decr, forwarded.

P.W.D

பொ. ப. பக எண். 24

______________ துறை

குறிப்பிட்டவர் பொறுப்பிலிருக்கும் பதிவுக் கட்டிலின்றும் எடுக்கப்பட்ட தாள்.

அச்சு / பல்வகை / வாலாயம் எண் 842 412-413, தேதி 16-3-69 198 .

எடுத்த தேதி.	எதன் பொருட்டு: துறை.	நடப்பு எண்	ஆண்டு.	தாள் எடுக்கும் எழுத்தர் அல்லது சிற்றெழுத்தர் சுருக்கொப்பம்.	திருப்பிக் கொடுத்த தேதி.	சிற்றெழுத்தரின் சுருக்கொப்பம்.
	23-2-88		224/RH			
	28/1/88			R		

பொ. ப. புது எண். 24

______________________ துறை.

குறிப்பிட்டவர் பொறுப்பிலிருக்கும் பதிவுக் கட்டியின்னும் எடுக்கப்பட்ட தாள்.

அச்சு / பல்லகை / லாலாயம் எண் ______________, தேதி ______________________ 193 .

எடுத்த தேதி.	எதன் பொருட்டு:			தாள எடுக்கும் எழுத்தர் அலலது சிற்றெழுத்தர் சுருக்கொப்பம்.	திருப்பிக் கொடுத்த தேதி.	சிற்றெழுத்தரின் சுருக்கொப்பம்,
	துறை.	நடப்பு எண்	ஆண்டு.			